Attorney Docket No. 109911-130404 #8

IPG NO. 2014

4-28-4 . Patent

APR 16 2004

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application for:

Porter

Application No.: 09/544,492

Filed: April 7, 2000

For: Method and Apparatus For Protectively Operating A Data/Information Processing Device

Examiner: Shah, Nilesh R

Art Group: 2127

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APR 2 1 2004

Technology Center 2100

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Appellant's Brief Under 37 C.F.R. §1.192 In Support Of Appellant's Appeal To The Board Of Patent Appeals And Interferences

Dear Sir:

The Appellant hereby submits this Brief in support of their appeal from a final decision by the Examiner, mailed November 19, 2003, in the above referenced case. The final decision was in response to arguments filed on August 20, 2003, in response to an earlier office action, mailed May 22, 2003. Appellant respectfully requests consideration of this appeal by the Board of Patent Appeals and Interferences for allowance of the present patent application.

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(1) Real Party In Interest

The real party in interest is Xoucin, Inc, a corporation of Washington, having its primary place of business at 550 Kirkland Way, Suite 404, Kirkland, WA 98033.

(2) Related Appeals And Interferences

To the best of Appellants' knowledge, there are no appeals or interferences related to the present appeal, which will directly affect, be directly affected by, or have a bearing on the Board's decision.

(3) Status Of The Claims

Claims 1-16 and 19-26 were rejected in the Final Office Action dated November 19, 2003. Claims 17-18 were objected to for being dependent on rejected claims, otherwise are allowable. Claims 1-26 remain pending herein and are reproduced, as pending, in Appendix A.

(4) Status of Amendments

Claims 12 and 20 are amended concurrent with this submittal to correct informality problems noted by the Examiner.

(5) Summary of the invention

Embodiments of the present invention include the novel provision of a privilege level re-mapping mechanism to a processor to re-map privilege levels. In various embodiments, the re-mapping mechanism is placed in between the control registers (employed to store task privilege levels for tasks) and the privilege checking circuitry, to enable the re-mapping to be dynamically performed in real time prior to privilege checking. The novel dynamic re-mapping of privilege levels prior to privilege checking enables tasks to be executed with relative privilege level relationships that are different from what were nominally assigned to the tasks. In various embodiments, complementary selection mechanism is also provided to enable the novel dynamic re-mapping to be conditionally performed.

(6) Issues Presented

I. Whether claims 1-12, and 23-26 are patentable under 35 U.S.C. §102(b).

II. Whether claims 13, 15-16 and 19-22 are patentable under 35 U.S.C. §102(b).

III. Whether claim 14 is patentable under 35 U.S.C. §103.

(7) Grouping of claims

For purposes of this appeal, based on the above listed grounds of rejection, the claims are grouped as follow:

Group I claims 1-12 and 23-26 stand or fall together.

Group II, claims 13-16 and 19-22 stand or fall together.

(8) Arguments

Rejection of claims 1-12 and 23-26 under 35 U.S.C. §102(b) was improper because *Christie* failed to teach <u>at least one recited limitation</u> of each of these claims.

The law is well settled that anticipation under 35 U.S.C. §102 requires the disclosure in a single piece of prior art, **each and every** limitation of a claimed invention. See e.g. *Electro Med. Sys. S.A. v. Cooper Life Sciences*, 34 F.3d 1048, 1052, 32 USPQ2d 1017, 1019 (Fed. Cir. 1994). Thus to anticipate the present invention, *Christie* (USP 6,154,818), the prior art relied upon by the Examiner, must disclose and teach each and every element of claims 1-12 and 23-26.

Independent claim 1 as pending recites:

1. A processor comprising:

a control register to store a task privilege level for a task; and
a privilege remapper coupled to the control register to dynamically
remap the stored task privilege level.

Accordingly, claim 1 clearly requires a) a control register and b) a privilege remapper. Further, the control register is to be employed to store a <u>task privilege level</u> <u>of a task</u>. Moreover, the privilege remapper is to be employed to <u>dynamically remap the</u> <u>stored task privilege level</u>.

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Note that the claim language does not merely claim the "dynamic remapping of a task's privilege", but a specific novel arrangement that includes a remapper, coupled to a control register holding the remapper's operand, i.e. the task privilege level value of a task, and adapted to operate on the operand, i.e. remapping the stored task privilege level of the task.

In rejecting claim 1, the Examiner relied on Christie (USP 6,154,818). In particular, the Examiner asserted that Christie anticipated the required control register through its teaching in col. 1, lines 56 – col. 2, line 48, and the required privilege remapper through its teaching in Fig 3B and col. 14 lines 30-65.

As Applicant explained in an earlier response, Christie clearly stated in col.14, lines 40-41 that "remapper 306 is a circuit that maps an MSR address to a local address of an implemented MSR". The input to Christie's MSR is an address, and the output is a local address. Therefore, the function performed by Christie's MSR is an address mapping operation. The remapping of the address may have effect in remapping the privilege of the accessing instruction, but that is insufficient to form a basis for 102(b) rejection against claim 1, because as noted earlier, the claim does not merely claim effect a privilege level change on a task, and the teaching does not explicitly anticipate what was actually claimed, i.e. effectuating privilege change via remapping of a stored task privilege level of the task. The recited limitation requires the operand of the remapping operation be a stored task privilege level. No one of ordinary skill in the art of processor architecture would consider a stored task privilege level to be the same as an address, or vice versa.

Accordingly, claim 1 is patentable over Christie.

Claims 2-6 depend on claim 1, incorporating its limitations. Accordingly, for at least the same reasons, claims 2-6 are also patentable over Christie.

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Claims 7, 23 and 25 contain in substance the above discussed limitations of claim 1. Accordingly, for at least the same reasons, claims 7, 23 and 25 are patentable over Christie.

Claims 8-12, 24 and 26 depend on claim 7, 23 and 25 respectively, incorporating their respective limitations. Accordingly, for at least the same reasons, claims 8-12, 24 and 26 are patentable over Christie.

Rejection of claims 13, 15-16, and 19-22 under 35 U.S.C. §102 was improper because *Parmar* failed to teach <u>at least one recited limitation</u> of each of these claims.

Claim 13 recites in pertinent part

> *attributing a ring-2 privilege level to a first task, nominally giving said first task more privilege than a second plurality of tasks which are attributed with a ring-3 privilege level; and*

> *dynamically remapping each ring-2 privilege level to a ring-3 privilege level, and each ring-3 privilege level to a ring-2 privilege level prior to runtime privilege checking <u>to cause said first task to execute in fact with less privilege</u>.(emphasis added).*

Thus, claim 13 requires

- an initial assignment of ring privileges to tasks

- moreover, the initial assignment gives a first task a ring-2 privilege, a higher ring privilege than the ring-3 privileges assigned to a second plurality of tasks;

- however, prior to runtime privilege checking (to establish the resources a task may access), the privilege assignment is turned "upside down", with the first task's ring-2 privilege *dynamically remapped* to a ring-3 privilege, and the second plurality of tasks' ring-3 privilege *dynamically remapped* to a ring-2 privilege.

Note that claim 13 does not claim the transfer of execution control from a task of one privilege level to another task of another privilege level, thereby facilitating

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performance of higher privilege operations (assuming the privilege level of the callee task, is higher than the privilege level of the caller task).

In rejecting claim 13, the Examiner relied on Parmar's teachings in Fig. 2, and the corresponding description in col. 9, line 45-col 11 line 50, in particular, col. 11, lines 20-50. Fig. 2 and the corresponding description merely disclosed the underlying ring mechanism. It did not disclose the required <u>dynamically remapping of a ring-2 privilege assigned to a task to ring-3, and a ring-3 privilege assigned to a task to ring-2</u>.

The Examiner relied specifically on Pamar's disclosure in col. 11, lines 20-50, which in pertinent part states

"*a procedure in an outer ring such as ring 3 can <u>branch</u> to an inner ring such as ring 1 via gate 204 which results in a legal <u>branch</u> 203, but a procedure operating in an inner ring such as ring 2 may not <u>branch</u> to an outer ring such as ring 3*".

One skilled in the art would understand the word <u>branch</u> to mean switching execution from one procedure (or task) to another procedure (or task). So the disclosure that "a procedure in an outer ring such as ring 3 can <u>branch</u> to an inner ring" merely means that execution may switch from a first procedure (task) with ring 3 privilege to a second procedure (task) with ring 1 privilege. <u>The privileges of the first and second procedures (or tasks) DO NOT change.</u> Therefore, there is no remapping of their privileges.

Even if we are to ignore the meaning of these passages as understood by those ordinarily skilled in the art, and assume arguendo that the word "*branch*" may mean "remapping of the branching procedure's privilege", Pamar still at most merely anticipated the portion of the limitation requiring remapping of ring-3 privilege to ring-2 privilege (low to high). Since Parmar clearly stated that a procedure may not *branch* from ring-2 to ring-3 (high to low) (see col. 11, lines 20-50), Parmar failed to anticipate

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the remaining limitation requiring not only remapping of ring-3 privilege to ring-2, but a coordinated remapping of ring-2 privilege to ring-3.

Accordingly, Parmar failed to anticipate each and every limitation of claim 13. Therefore, claim 13 is patentable over Parmar.

Claims 16, 19, and 21 contain in substance the above discussed limitations of claim 13, therefore claims 16, 19 and 21 are patentable over Parmar.

Claims 15, 20 and 22 depend on claims 13, 19 and 21 respectively, incorporating their respective limitations. Therefore, for at least the same reason, claims 15, 20 and 22 are patentable over Parmar.

Rejection of claims 14 under 35 U.S.C. §103 was improper because Parmar failed to teach at least one recited limitation of claim 13, on which claim 14 is dependent.

As discussed earlier, claim 13 is patentable over *Parmar*. Claim 14 is dependent on claim 13, incorporating its limitations. Accordingly, for at least the same reason, Claim 14 cannot possibly be obvious in view of *Parmar*. Therefore, claim 14 is patentable over *Parmar*.

(9) Conclusion

Appellant respectfully submits, for at least the reasons set forth earlier, all rejected claims 1-16 and 19-26 are patentable over the cited references. Further, claims 17 and 18 are not dependent on rejected claims, requiring their writing in independent form. Therefore, Applicant respectfully requests that the Board of Patent Appeals and Interferences overrules the Examiner, and directs allowance of the rejected claims.

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(10) Epilogue

This brief is submitted in triplicate, along with a check for $155 to cover the filing of appeal brief fee for a small entity as specified in 37 C.F.R. §1.17(c). We do not believe any other fees, in particular extension of time fees, are needed. However, should that be necessary, please charge our Deposit Account No. 500393.

In addition, please charge any shortages and credit any overages to said Deposit Account.

Respectfully submitted,
Schwabe, Williamson & Wyatt, P.C.

Dated: April 13, 2004

By Aloysius AuYeung, Reg No. 35,432
Attorney for Appellant Applicant

Attorney Docket No. 109911-130404
Application No. 09/544,492

Appendix A – Claims As Pending

1   1.   (Original) A processor comprising:

2   a control register to store a task privilege level for a task; and

3   a privilege remapper coupled to the control register to dynamically remap the

4   stored task privilege level.

1   2.   (Original) The processor of claim 1, wherein the privilege remapper comprises

2   a register to store a plurality of remapped task privilege levels to be accessed using

3   the stored task privilege level prior to runtime privilege checking.

1   3.   (Original) The processor of claim 1, wherein the privilege remapper comprises

2   a storage array to store a plurality of set of remapped task privilege levels to be

3   accessed using a configuration value and the stored task privilege level prior to

4   runtime privilege checking.

1   4.   (Original) The processor of claim 1, wherein the privilege remapper comprises

2   one or more logical elements to logically alter one or more bits of the stored privilege

3   level prior to runtime privilege checking.

1   5.   (Original) The processor of claim 1, wherein the privilege remapper further

2   comprises at least one selector coupled to at least one of the one or more logical

3   elements to effectuate conditional performance of said logically alteration for at least

4   one bit of the stored privilege level prior to runtime privilege checking.

1 6.   (Original) The processor of claim 1, wherein the processor further comprises
2 at least one selector coupled to the control register and the privilege remapper to
3 effectuate conditional performance of said remapping of the stored task privilege
4 level prior to runtime privilege checking.   .

1 7.   (Original) A method comprising:
2   storing a first task privilege level for a task; and
3   dynamically remapping the first task privilege level to a second task privilege
4 level prior to runtime privilege checking to effectuate a different execution privilege
5 level for the task.

1 8.   (Original) The method of claim 7, wherein said dynamic remapping comprises
2 accessing a register to retrieve a selected one of a plurality of remapped task
3 privilege levels stored in said register, using the stored first task privilege level, prior
4 to runtime privilege checking.

1 9.   (Original) The method of claim 7, wherein said dynamic remapping comprises
2 accessing a storage array to retrieve a selected one of a plurality of remapped task
3 privilege levels stored in said storage array in a set-wise manner, using a
4 configuration value and the stored first task privilege level, prior to runtime privilege
5 checking.

1 10.   (Original) The method of claim 7, wherein said dynamic remapping comprises
2 logically altering one or more bits of the stored first task privilege level, prior to
3 runtime privilege checking.

1   11.   (Original) The method of claim 10, wherein said altering being conditionally

2   performed.

1   12.   (Currently Amended) The method of claim 7~~1~~, wherein said dynamic

2   remapping being conditionally performed.

1   13.   (Original) In a processor having a 4-ring privilege protection scheme, where

2   tasks attributed with a lower ring privilege level is more privileged than tasks

3   attributed with a higher ring privilege level, a method comprising:

4   attributing a ring-2 privilege level to a first task, nominally giving said first task

5   more privilege than a second plurality of tasks which are attributed with a ring-3

6   privilege level; and

7   dynamically remapping each ring-2 privilege level to a ring-3 privilege level, and

8   each ring-3 privilege level to a ring-2 privilege level prior to runtime privilege

9   checking to cause said first task to execute in fact with less privileges than said

10   second plurality of tasks.

1   14.   (Original) The method of claim 13, wherein said first task is associated with

2   an Internet application.

1   15.   (Original) The method of claim 13, wherein said second plurality of tasks are

2   associated with an operating system.

1   16.   (Original) A method comprising:

2   attributing a first privilege level to a first collection of programming instructions,

3   said first privilege level being different from a second privilege level assigned to a

4   second collection of programming instructions, resulting in said first collection of

5   programming instructions to execute with a first relative privilege relationship to said

6   second collection of programming instructions at execution time; and

7   dynamically remapping said first privilege level to a third privilege level prior to

8   runtime privilege checking to cause the first collection of programming instructions to

9   execute with a second different relative privilege relationship to said second

10   collection of programming instructions.

1   17.   (Original) The method of claim 16, wherein said second and third privilege

2   levels are the same privilege level, and said method further comprises dynamically

3   remapping said second privilege level of said second collection of programming

4   instructions to a fourth privilege level prior to runtime privilege checking.

1   18.   (Original) The method of claim 17, wherein said first and fourth privilege

2   levels are the same privilege level.

1   19.   (Original) A method comprising:

2   attributing a first more privileged privilege level to a first subset of least privileged

3   tasks attributed with a least privileged privilege level; and

4   dynamically remapping said first more privileged privilege level attributed to said

5   first subset of least privileged tasks to said least privileged privilege level, and

6   remapping said least privileged privilege level attributed to residual ones of said

7   least privileged tasks prior to runtime privilege checking to cause said first subset of

8   least privileged tasks to execute with lesser privileges than said residual ones of the

9   least privileged tasks.

1 20. (Currently Amended) The method of claim 2119, wherein said least privileged

2 privilege level of said residual ones of said least privileged tasks are remapped to

3 said first more privileged privilege level.

1 21. (Original) A method comprising:

2   attributing a first lesser privileged privilege level to a first subset of most

3 privileged tasks attributed with a most privileged privilege level; and

4   dynamically remapping said first lesser privileged privilege level attributed to said

5 first subset of most privileged tasks to said most privileged privilege level, and

6 remapping said most privileged privilege level attributed to residual ones of said

7 most privileged tasks prior to runtime privilege checking to cause said residual ones

8 of the most privileged tasks to execute with lesser privileges than said first subset of

9 most privileged tasks.

1 22. (Original) The method of claim 21, wherein said most privileged privilege level

2 of said residual ones of said most privileged tasks are remapped to said first lesser

3 privileged privilege level.

1 23. (Original) A processor comprising:

2   a control register to store a privilege level; and

3   a privilege remapper coupled to the control register to dynamically remap the

4 stored privilege level prior to runtime privilege checking.

1 24. The processor of claim 23, wherein the processor further comprises at least one

2 selector coupled to the control register and the privilege remapper to effectuate

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3   conditional performance of said remapping of the stored privilege level prior to

4   runtime privilege checking.

1   25.   (Original) An apparatus comprising:

2   a control register to store a privilege level; and

3   a privilege remapper coupled to the control register to dynamically remap the

4   stored privilege level prior to runtime privilege checking.

1   26.   (Original) The apparatus of claim 25, wherein the apparatus further comprises

2   at least one selector coupled to the control register and the privilege remapper to

3   effectuate conditional performance of said remapping of the stored privilege level

4   prior to runtime privilege checking.

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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/544,492
Filing Date	04/07/2000
First Named Inventor	Swain W. Porter
Art Unit	2127
Examiner Name	Shah, Nilesh R.

Total Number of Pages in This Submission	48	Attorney Docket Number	109911-130404

ENCLOSURES *(Check all that apply)*

[✔] Fee Transmittal Form
    [✔] Fee Attached
[ ] Amendment/Reply
    [ ] After Final
    [ ] Affidavits/declaration(s)
[ ] Extension of Time Request
[ ] Express Abandonment Request
[ ] Information Disclosure Statement
[ ] Certified Copy of Priority Document(s)
[ ] Response to Missing Parts/ Incomplete Application
    [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53

[ ] Drawing(s)
[ ] Licensing-related Papers
[ ] Petition
[ ] Petition to Convert to a Provisional Application
[ ] Power of Attorney, Revocation Change of Correspondence Address
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Remarks

[ ] After Allowance communication to Technology Center (TC)
[ ] Appeal Communication to Board of Appeals and Interferences
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[ ] Status Letter
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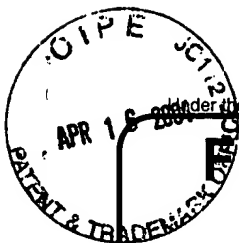
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Firm or Individual name	SCHWABE, WILLIAMSON & WYATT, P.C.
Signature	
Date	04/13/2004

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Typed or printed name	Heather L. Adamson		
Signature		Date	04/13/2004

#8

FEE TRANSMITTAL
for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

[✓] Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT	($) 165.00

Complete if Known

Application Number	09/544,492
Filing Date	04/07/2000
First Named Inventor	Swain W. Porter
Examiner Name	Shah, Nilesh R.
Art Unit	2127
Attorney Docket No.	109911-130404

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METHOD OF PAYMENT *(check all that apply)*

[✓] Check [ ] Credit card [ ] Money Order [ ] Other [ ] None

[✓] Deposit Account:

Deposit Account Number	500393
Deposit Account Name	Schwabe, Williamson et al

The Director is authorized to: *(check all that apply)*

[ ] Charge fee(s) indicated below   [✓] Credit any overpayments

[✓] Charge any additional fee(s) or any underpayment of fee(s)

[ ] Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		X	=
Independent Claims		- 3** =		X	=
Multiple Dependent					=

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

APR 2 1 2004

3. ADDITIONAL FEES

Technology Center 2100

Large Entity Fee Code	Fee ($)	Small Entity Fee Code	Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	165
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 330.00

SUBMITTED BY

				(Complete *if applicable*)
Name (Print/Type)	Aloysius T.C. AuYeung	Registration No. (Attorney/Agent)	35,432	Telephone 503-222-9981
Signature			Date	04/13/2004

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